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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,721	11/20/2003	Daniel R. Pavlik	P0020005.00/LG10126	8711

27581 7590 12/09/2010

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EXAMINER	
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ART UNIT	PAPER NUMBER
3766	

NOTIFICATION DATE	DELIVERY MODE
12/09/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/717,721
Filing Date: November 20, 2003
Appellant(s): PAVLIK ET AL.

Reed A. Duthler
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal briefs filed August 6, 2010 and September 20, 2010 appealing from the Office action mailed February 24, 2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

1-6, 8-13, 25, and 29.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

6,643,550	WESTLUND et al.	11-2003
6,912,423	LEY et al.	6-2005
5,385,578	BUSH et al.	1-1995

The following is a teaching reference relied upon to illustrate that state of the art:

6,934,589	SUNDQUIST et al.	8-2005

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, 8-13, 25, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Westlund et al. (U.S. Patent No. 6,643,550). Regarding claim 1,

Westlund discloses a medical electrical lead comprising a component 100 including a surface and a groove 205/207/240 formed in the surface and including an inherent depth, and a conductor 195, including an inherent pre-weld diameter, extending within the lead and including a portion positioned and welded within the groove of the component (see Figures 6 and 7 and col. 5, ln. 50-65). Figures 10C and 10D further show a cutaway view of conductor 195 that illustrates the conductor comprising a plurality of wire strands cabled together. Further, Westlund discloses that suitable welding techniques for welding conductors, such as conductor 195, includes resistance welding (see col. 7, ln. 63-65). However, Westlund fails to disclose that the pre-weld diameter of the conductor is greater than the depth of the groove. It would have been obvious to one having ordinary skill in the art at the time the invention was made for the pre-weld diameter of the conductor to be greater than the depth of the groove, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233. Alternatively, one of ordinary skill in the art would recognize that the pre-weld diameter of the conductor may be smaller than, larger than, or the same size as the depth of the groove. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose from these three finite, identified solutions when determining the appropriate ration between the diameter of the conductor and the depth of the groove.

3. Regarding claim 2, it can be seen from Figures 1 and 8 of Westlund that the surface has a curved profile.

4. Regarding claims 3-5, it can be seem from Figures 1 and 6-8 of Westlund that the component 100 comprises a substantially tubular body and the surface includes inner and outer diameters.

5. Regarding claim 8, Westlund discloses that the conductor may be a coil (see Figures 6 and 10D).

6. Regarding claims 9 and 25, it can be seen from Figure 6 of Westlund that the groove extends approximately aligned with a longitudinal axis of the component.

7. Regarding claim 10, it can be seen from Figure 10D of Westlund that the groove 207 may extend approximately transverse to a longitudinal axis of the component.

8. Regarding claim 11, it can be seen from Figure 10D of Westlund that the groove 207 may spiral about a portion of a circumference of the surface.

9. Regarding claims 12 and 13, it can be seen from Figure 10D of Westlund that the groove 207 includes a generally U-shaped cross-section. The Examiner takes the position that a generally U-shaped groove has an approximately semi-circular cross-section. Furthermore, as a U-shape is simply a smoothed V-shape, the Examiner takes the position that the groove of Westlund has an approximately V-shaped cross section.

10. Regarding claim 29, Westlund discloses a medical electrical lead comprising a component 100 comprising a substantially tubular body including a surface and a groove 205/207/240 formed in the surface and including an inherent depth, and a conductor 195, including an inherent pre-weld diameter, extending within the lead and including a portion positioned and welded within the groove of the component (see Figures 6 and 7 and col. 5, ln. 50-65). The Examiner respectfully submits that Westlund

illustrates in Figure 10B that the component 100 has a substantially tubular body having an inner surface and a groove formed in the inner surface, as shown in the reproduction of Figure 10B below:

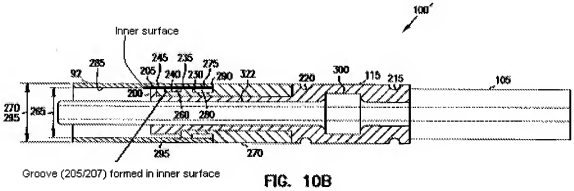

FIG. 10B

Furthermore, Figures 10C and 10D of Westlund show a cutaway view of conductor 195 that illustrates the conductor comprising a plurality of wire strands cabled together; and Westlund discloses that suitable welding techniques for welding conductors, such as conductor 195, includes resistance welding (see col. 7, ln. 63-65). However, Westlund fails to disclose that the pre-weld diameter of the conductor is greater than the depth of the groove. It would have been obvious to one having ordinary skill in the art at the time the invention was made for the pre-weld diameter of the conductor to be greater than the depth of the groove, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233. Alternatively, one of ordinary skill in the art would recognize that the pre-weld diameter of the conductor may be smaller than, larger than, or the same size as the depth of the groove. Therefore, it

would have been obvious to one of ordinary skill in the art at the time of the invention to choose from these three finite, identified solutions when determining the appropriate ration between the diameter of the conductor and the depth of the groove.

11. Claims 1-6, 8, 9, 12, 13, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ley et al. (U.S. Patent No. 6,912,423) in view of Bush et al. (U.S. Patent No. 5,385,578). Regarding claim 1, Ley discloses a medical electrical lead comprising a component 100 including a surface and a groove 102 formed in the surface, a conductor 106 extending within the lead, including a plurality of wire strands cabled together, and a portion positioned within the component, wherein the groove includes a depth and the portion of the conductor positioned within the groove includes a pre-weld diameter, the pre-weld diameter being greater than the depth of the groove (see Figures 9 and 10 and col. 5, ln. 41-56). However, Ley fails to disclose a resistance weld formed between the portion of the conductor and the component. Bush teaches the utilization of a resistance weld formed between conductors and lead components in order to minimize the bulk of the connection (see col. 7, ln. 24-26 and 31-37). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize a resistance weld between the conductor and component of Ley, as taught by Bush, in order to minimize the bulk of the connection.

12. Regarding claim 2, it can be seen from Figure 9 of Ley that the surface has a curved profile.

13. Regarding claims 3-5, it can be seen from Figures 9 and 10 of Ley that the component comprises a substantially tubular body and the surface includes inner and

outer diameters. Further, Ley discloses that the component includes an outer electrode surface 128 (see Figure 8).

14. Regarding claim 6, Ley discloses the invention essentially as claimed, but fails to specifically disclose that the outer electrode surface includes a titanium nitride coating. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention of Ley in view of Bush with a titanium nitride coating on the outer electrode surface since it was known in the art that titanium nitride coatings are utilized to enhance biocompatibility and improve electrical characteristics.

15. Regarding claim 8, Ley discloses that the conductor may be a coil (see col. 5, ln. 29-32).

16. Regarding claims 9 and 25, it can be seen from Figure 9 of Ley that the groove may extend approximately aligned with a longitudinal axis of the component.

17. Regarding claims 12 and 13, it can be seen from Figure 10 of Ley that the groove 102 includes a generally U-shaped cross-section. The Examiner takes the position that a generally U-shaped groove has an approximately semi-circular cross-section. Furthermore, as a U-shape is simply a smoothed V-shape, the Examiner takes the position that the groove of Ley has an approximately V-shaped cross section.

(10) Response to Argument

A. Rejection Under 35 U.S.C. §103 - Westlund (U.S. 6,643,550)

Regarding the rejection of claims 1-5, 8-13, 25, and 29 as being unpatentable over Westlund, the Appellant argues that the claims require that the "strands (plural) of

the cable are welded in the previously designated groove (singular)." The Appellant argues that conductors 195 are multi-filar coils comprising single strand solid conductors, and not "a plurality of wire strands cabled together" as required by the claims. The Appellant provides examples of the usage of the terms "cable" and "cabled" within the art in the Appendix associated with the Brief. The Examiner respectfully submits that while the Appellant's examples do illustrate an accepted usage of the terms "cable" and "cabled" within the art, they are not an exhaustive list of such usages. Furthermore, the claims do not require a cable, but rather require "a plurality of wire strands cabled together." Wire strands may be cabled together in the manner suggested by the examples provided by the Appellant, where the strands are twisted together along their lengths. However, the term "cabled together" could also refer to the attachment of a plurality of wire strands end-to-end, or to a plurality of wire strands that are connected to one another via a cable. As such, the Examiner respectfully submits that the examples provided by the Appellant do not provide a full picture of the breadth of the claim language. Furthermore, the Examiner would like to submit two pieces of evidence suggesting that multi-filar coils, which the Appellant argues are disclosed by Westlund, are themselves considered within the art to be the same as, or equivalent to, cables. Sundquist et al. (U.S. Patent No. 6,934,589) describes a conductor that may be a "coil, a single or multi-filar cable, or any other type of conductor suitable for this purpose" (see col. 9, ln. 21-23) Sundquist supports the understanding within the art that a multi-filar coil may itself be considered a cable, even indicating that a single-filar coil may be considered a cable. The Examiner therefore respectfully disagrees with the

Appellant's assertion that the terms cable, cable conductor and cabled conductor are "all well understood by those of skill in the art to be distinct from coiled conductors or conductor coils." Furthermore, it is clear from the large number of examples provided by the Appellant that cabled conductors as interpreted by the Appellant are well known and used extensively throughout the art. Therefore, it is clear that even, assuming arguendo, if the multi-filar coil of Westlund were not considered to satisfy the claim limitation of "a plurality of wire strands cabled together" it would be obvious to substitute one known element, the cabled conductor of any of the references of the Appendix, for another, the multi-filar cabled conductor of Westlund, to obtain the predictable result of conducting electrical energy through a lead.

The Appellant further argues that each conductor 195 is located in a separate groove, and that even if the multi-filar coil 195 of Westlund were considered to be a cable, it still would not be a conductor cable welded into a single groove as required by the claims. The Examiner respectfully disagrees. As an initial matter, it can be seen from Figure 8 of Westlund that a plurality of multi-filar coils 195 may be disposed within chamfer 108. Therefore, Westlund does disclose a "plurality of wire strands cabled together positioned within" a groove of the component. Furthermore, regarding chamfer 207 in Figures 10C and 10C, the Examiner submits that multi-filar coil 195 is itself a "plurality of wire strands cabled together." Therefore, as shown in Figures 10C and 10D, Westlund discloses a conductor 195, the conductor extending within the lead and including a plurality of wire strands cabled together positioned within the groove 207 of the component.

The Appellant further argues that "if a single strand wire conductor as illustrated in Westlund (circular cross section) were larger than the depth of the groove as illustrated in Westlund [square cross section], it correspondingly would also be wider than the groove and the points of greatest resistance would create a weld pool on the surface of the conductor that is outside the groove, likely causing the weld to fail." The Examiner respectfully submits that it can be clearly seen in Figures 10C and 10D that the diameter of the multi-filar conductor 195 is roughly equal to the depth of the groove 207, as the groove is not shown to extend above the conductor in Figure 10D. Further, it can also be clearly seen from Figures 10C and 10D that the width of groove 207 is wider than the diameter of conductor 195. Westlund expressly discloses that groove 207 is wider than multi-filar conductor 195 (see col. 7, ln. 32-34). As such, if the multi-filar conductor 195 were larger than the depth of the groove, it would not necessarily be wider than the groove. In fact, it can be seen from Figures 10C and 10D that the diameter of the multi-filar conductor 195 could be greatly increased and still have a diameter less than the width of the groove. As such, it is believed that the Appellant's conclusion that "the points of greatest resistance would create a weld pool on the surface of the conductor that is outside the groove, likely causing the weld to fail" is erroneous and based on an incorrect assumption regarding the width of the groove. As such, increasing the diameter of the multi-filar conductor 195 would not be expected to result in a failure of the weld.

The Appellant further argues that unless "greater than," "less than," or "equal to" are asserted to be known equivalent alternatives, the opinion that they are identified

alternatives is per-se inadequate. Further, the Appellant provides the example that although "Thou shalt kill" and "Thou shalt not kill", they are not useful alternatives, although they are known alternatives. It therefore appears that the Appellant is arguing that "greater than," "less than," or "equal to" are not useful alternatives to one another. The Examiner respectfully submits that the Appellant's example is of a situation that is completely different from that of the present discussion. Killing versus not killing are actions, while the relative dimensions of a conductor dimension and a groove depth have to do with the sizes of different elements. In fact, in the present case, the size of the conductor diameter is only at issue. The conductor can have any of a number of different diameters, however each of those different diameters must be one of the three "greater than," "less than," or "equal to" the groove depth. The Appellant further argues five specific points. First, the Appellant argues that "'greater, lesser and equal' are seldom considered equivalents to one another. Ask any engineer, carpenter, cook or mechanic." The Examiner respectfully submits that "greater, lesser and equal" are not being considered to be equivalents to one another, but rather are considered to be obvious variants of one another. Second, the Appellant argues that "there is no mention of where these alternatives are 'identified' as being equivalent." Again, the Examiner submits that "greater than," "less than," and "equal to" are not considered equivalents, but are rather obvious variants. Third, the Appellant argues that "within the teaching of Westlund, the express teaching is clear that the diameter of a conductor should be less than or equal to the depth of the recess (groove or bore) in which it is mounted." The Examiner respectfully submits that such an express teaching is not found in Westlund.

In fact, Westlund is completely silent as to the depth of groove 207 and the diameter of multi-filar conductor 195. As such, it is unclear what "express teaching" is relied upon by the Appellant as no citation is given. Fourth, the Appellant argues that "in the claimed context of resistance welding, these would not in fact be equivalent alternatives in the case of single strand conductors welded in to grooves the reason discussed above." It is unclear to which reason the Appellant is referring. Further, it is reiterated that "greater than", "less than", and "equal to" are not considered by the Examiner to be equivalents, but rather to be obvious variants. Fifth, the Appellant argues that "even if these three alternatives could be considered as obvious equivalent alternatives in the case of welding single stranded solid wires as disclosed in Westlund, the argument still does not address the questions associated with welding cabled stranded conductors as required by the claims." It appears that the Appellant is arguing that the type of conductor used by Westlund is different from the type of conductor which is presently claimed. The Examiner feels that this matter has been adequately addressed above. The multi-filar conductor of Westlund is considered to satisfy the claim limitations for the claimed conductor. Therefore, the resistance welding technique utilized by Westlund is satisfactory for the welding of the conductor of Westlund.

The Appellant further submits that in response to the above arguments, the Examiner's response was "However, the Examiner submits that the claim does not require a multi-strand cable but rather a plurality of wire strands cabled together." The Examiner respectfully submits that the above statement was not made in response to the same arguments that the Appellant presents in the current brief, but rather was

made in response to the Appellant's arguments made in the After-Final Amendment submitted on April 5, 2010. The Examiner believes that the present response addresses the perceived deficiencies in the rejection, and thus meets the required standard of common sense.

B. Rejection Under 35 U.S.C. § 103 - Rejection over Ley (U.S. 6,912,423) in view of Bush (U.S. 5,385,578)

Regarding the rejection of claims 1-6, 8-13, and 25 under 35 U.S.C. 103(a) as being unpatentable over Ley in view of Bush, the Appellant argues the obviousness of adding a resistance weld to the disclosed connection geometry of Ley. The Appellant argues that "in Ley, after insertion of the insulated conductor into the groove, the surface of the filar available opposite the intended weld site is covered with insulation, making a resistance weld impractical, or at the very least a bad idea." The Examiner respectfully Disagrees and submits that Ley discloses at col. 5, ln. 46-48 that as the conductor 106 is inserted into the groove 102, the insulation is removed. As such, a resistance weld would be neither impractical, nor a bad idea. The Appellant argues that "yes, the insulation could theoretically be stripped off, but the expressly stated benefit of the connection as disclosed in Ley is avoiding the necessity of performing this step." The Examiner respectfully submits that such an "expressly stated benefit" has not been found in Ley. In fact, as discussed above, Ley expressly discloses removing the insulation of conductor 106. Thus, the Appellant's conclusion that "adding a process (resistance welding) to the disclosed connection geometry would thus necessitate

removal the intended benefit of the connection geometry of Ley and therefore cannot be an obvious modification" does not appear to be supported from the disclosure of Ley.

The Appellant further argues that "the connection geometry in Ley is intended to provide an alternative to welding, and to avoid the necessity of welding altogether." The Examiner respectfully submits that a discussion in Ley indicating the intention to provide an alternative to welding, or avoidance of welding altogether, has not been found. The Appellant argues that the use of a resistance weld in conjunction with the connection geometry of Ley would defeat its basic purpose and cannot be reasonably argued to be an obvious modification. In response, the Examiner submits that the Appellant has failed to point to any disclosure in Ley that supports the assertion that the basic purpose of the invention of Ley is to provide an alternative to welding.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Tammie Heller/

Examiner, Art Unit 3766

Conferees:
/Carl H. Layno/
Supervisory Patent Examiner, Art Unit 3766

/Eric Nicholson/
RQAS